

Remarks

Claims 36-41, 57, and 64 are pending.

Rejection of Claims under 35 U.S.C. § 112

Claims 36-38 and 64 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The applicants respectfully traverse this rejection.

The applicants respectfully submit that the Examiner has improperly taken the rejected phrase out of context. Section 2173.02 of the MPEP makes clear that:

In reviewing a claim for compliance with 35 U.S.C. 112, second paragraph, the examiner must consider the claim as a whole to determine whether the claim apprises one of ordinary skill in the art of its scope and, therefore, serves the notice function required by 35 U.S.C. 112, second paragraph. by providing clear warning to others as to what constitutes infringement of the patent. See, e.g., *Solomon v. Kimberly-Clark Corp.*, 216 F.3d 1372, 1379, 55 USPQ2d 1279, 1283 (Fed. Cir. 2000). See also *In re Larsen*, No. 01-1092 (Fed. Cir. May 9, 2001) (unpublished).

When the rejected phrase is read in context, i.e., “... wherein the removable band-limited diffuser and the removable masking plate form a matched set *configured to allow exposure of a particular size hogel*,” (emphasis added), the rejected phrase satisfies the requirements of §112. More specifically, the claim requires that the diffuser and masking plate together are configured to allow exposure of a particular size hogel. Thus, the diffuser and masking plate together form a set, and the two members of that set are configured together for the claimed function, i.e., the members are matched together for a particular purpose. The applicants respectfully submit that the rejected phrase apprises one of ordinary skill in the art of the claim scope, and is definite in and of itself as well as in light of the specification.

Regarding claims 39-41 and 57, it appears that the Examiner's intent was to reject these claims under 35 U.S.C. § 112, second paragraph. Although no such rejection was explicitly made, the applicants have proceeded under that assumption. If the applicants

are incorrect in this regard, clarification is respectfully requested. The applicants respectfully traverse this rejection.

As above, the applicants respectfully submit that the apparently rejected language merely recites functional limitations that apprise one of ordinary skill in the art of the claim scope, both in and of it self and particularly in light of the specification.

The Examiner states that “a **single** voxel-control lens is in fact **incapable of** so varying the size of at least one voxel, of making the rendered image displayed by the object beam unit. . .appear at a greater apparent distance relative to the holographic recording material.” Office Action of November 2, 2004, p. 3, bottom, emphasis in original. The applicants respectfully disagree. Page 18, line 8, through page 19, line 11, and Figures 9-11 of the applicants’ specification illustrate some of the ways in which a single voxel-control lens can provide the recited functions. For example, the mere presence of such as lens, as opposed to the absence of such a lens, achieves the recited functions. Moreover, adjustment of the position of the lens, e.g., its position between the holographic recording surface 70 and the converging lens 55 or other optical systems, can also achieve the recited functions.

Additionally, the claim language does not limit the recited functionality to be provided by one and only one lens. Claim 39 is an open claim, and as such it is well within the scope of the claim that the recited voxel-control lens operate in conjunction with other devices (whether or not recited in the claim) to achieve the recited functionality.

Accordingly, the applicants respectfully submit that claims 36-41, 57, and 64 are definite.

Rejection of Claims under 35 U.S.C. § 102

Claim 57 remains rejected under 35 U.S.C. § 102(e) as being anticipated by Kihara et al., U.S. Patent No. 5,949,559 (Kihara). The applicants respectfully traverse this rejection.

Kihara neither teaches nor suggests a method including:

conditioning the object beam with the rendered image, the conditioning of the object beam including the step of *passing the object beam through a voxel-control lens, the voxel control lens being capable of varying the size of at least one voxel and being capable of making the rendered image as seen from the viewpoint of an elemental hologram appear at a greater apparent distance relative to the holographic recording material;*

as required by independent claim 57.

Regarding the claimed “. . . passing the object beam through a voxel-control lens . . .,” the Examiner refers to Kihara’s 43, which is described by Kihara as follows:

. . . a cylindrical lens 43 for condensing the object beam transmitted through the one-dimensional diffuser panel 42 onto the hologram recording medium 30 . . . (column 5, lines 3-6)

Then, the light is condensed onto the hologram recording medium through the effect of the cylindrical lens 43. (Column 6, lines 23-24).

Thus, the applicants respectfully submit that Kihara’s lens 43 is not a voxel control lens, nor does Kihara teach or suggest that lens 43 is both (1) capable of varying the size of at least one voxel, and (2) capable of making the rendered image as seen from the viewpoint of an elemental hologram appear at a greater apparent distance relative to the holographic recording material.

The applicants continue to submit that the Examiner has pointed to no teaching or suggestion in Kihara that the referenced lens performs the claimed functions, and that the Examiner has failed to reference any knowledge generally available to one of ordinary skill in the art that would teach the same.

Accordingly, the applicants respectfully submit that claim 57 is allowable over Kihara.

Rejection of Claims under 35 U.S.C. § 103

Claims 36-41 and 64 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kihara.

Kihara neither teaches nor suggests an apparatus for printing holographic stereograms including:

an object beam unit, including a removable band-limited diffuser, for displaying a rendered image and for conditioning the object beam with the

rendered image to interfere with the reference beam at a chosen elemental hologram, *wherein the removable band-limited diffuser includes a deterministic phase pattern designed to diffuse light in at least one of a specific pattern and a specific direction, and wherein the removable band-limited diffuser is designed for a wavelength corresponding to a wavelength of the coherent beam;*

a removable masking plate located in the path of the reference beam and proximate to the holographic recording material, *wherein the removable band-limited diffuser and the removable masking plate form a matched set configured to allow exposure of a particular size hogel;* and

as required by independent claim 36.

Regarding the claimed “an object beam unit, including a removable band-limited diffuser . . . ,” the Examiner refers to Kihara’s diffuser panels **42** and **45**, notes the “inherent” band-limited nature of Kihara’s diffusers, and merely asserts that Kihara’s diffusers include a deterministic phase pattern designed to diffuse light in at least one of a specific pattern and a specific direction. The applicants respectfully submit that Kihara’s diffusers: (1) are not “band-limited” diffusers; (2) do not include “a deterministic phase pattern designed to diffuse light in at least one of a specific pattern and a specific direction”; and (3) are not “designed for a wavelength corresponding to a wavelength of the coherent beam.”

In his Office Action of November 2, 2004, p. 6, top, the Examiner states:

. . . The Examiner asserts that Kihara et al. meet Applicants’ *band-limited diffuser* teaching, inasmuch as diffuser 42 of Kihara et al. not only has a deterministic phase pattern designed to diffuse light in a specific pattern—the same incidentally, could be said of virtually *any* diffuser; that is, that diffusers are *designed* (which goes to deterministic) to diffuse light, and a specific pattern can reasonably be taken to be, for the sake of example, diffusion into π -steradians of solid angle, i.e., hemispherical diffusion; in the alternative, the band-limited diffuser 42 taught by Kihara et al. certainly can reasonably be viewed as having been designed to diffuse light in a specific direction, at least one such specific direction being along the optical axis of the diffuser—which, incidentally, does not preclude diffusion in other directions; and finally the diffuser taught by Kihara et al. obviously adequately transmits coherent source light, and was presumably selected, if not specifically design, for this reason

There is nothing in Kihara or in anything else presented by the Examiner teaching or suggesting that Kihara’s diffusers are “band-limited” within the meaning of the term as

known to those having ordinary skill in the art. The Examiner's conclusion as to the meaning of the term "band-limited" renders the term meaningless in the claim and is contrary to the meaning of the term as presented in the applicants' specification.

More specifically, the Examiner inappropriately reads the claim term "deterministic" out of the context in which it is presented. The Examiner asserts the claim limitation is met merely because any diffuser is designed to diffuse light. However, the applicants clearly recite that the claimed diffuser have a special property, i.e., "a deterministic phase pattern". This is simply not taught by Kihara and not shown by the Examiner to be in the knowledge generally available to one of ordinary skill in the art.

Regarding the claim requirement that the band-limited diffuser is "designed for a wavelength corresponding to a wavelength of the coherent beam," the Examiner merely states that "the diffuser taught by Kihara et al. obviously adequately transmits coherent source light, and was presumably selected, if not specifically design, for this reason." Again, the Examiner points to no specific teaching in Kihara for the claim limitation. Whether or not Kihara's diffuser "adequately transmits coherent source light" (a statement not supported by Kihara and not concede by the applicants), a diffuser that adequately transmits coherent source light does not teach or suggest a diffuser "designed for a wavelength corresponding to a wavelength of the coherent beam."

Regarding the claim requirement of a "removable masking plate located in the path of the reference beam . . . ," the Examiner refers to Kihara's mask 44. The applicants respectfully submit that Kihara teaches that mask 44 is located in the path of the object beam (see, e.g., **Figures 3A and 3B**) and not in the path of the reference beam. Moreover, regarding the claim limitation that "the removable band-limited diffuser and the removable masking plate form a matched set configured to allow exposure of a particular size hogel," the Examiner presents no argument.

Accordingly, the applicants respectfully submit that claim 36 is allowable over Kihara. Claims 37, 38, and 64 depend from claim 36 and are allowable for at least this reason.

Kihara neither teaches nor suggests an apparatus for printing holographic stereograms including:

a voxel-control lens located in the path of the object beam and proximate to the holographic recording material, *the voxel control lens being capable of varying the size of at least one voxel and being capable of making the rendered image displayed by the object beam unit as seen from the viewpoint of an elemental hologram appear at a greater apparent distance relative to the holographic recording material*; and

as required by independent claim 39.

As noted above, the Examiner refers to Kihara's **43**, which is described by Kihara as follows:

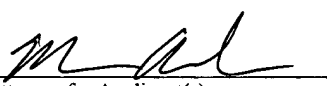
. . . a cylindrical lens **43** for condensing the object beam transmitted through the one-dimensional diffuser panel **42** onto the hologram recording medium **30** . . . (column 5, lines 3-6)

Then, the light is condensed onto the hologram recording medium through the effect of the cylindrical lens **43**. (Column 6, lines 23-24).

Thus, the applicants respectfully submit that Kihara's lens **43** is not a voxel control lens, nor does Kihara teach or suggest that lens **43** is both (1) capable of varying the size of at least one voxel, and (2) capable of making the rendered image as seen from the viewpoint of an elemental hologram appear at a greater apparent distance relative to the holographic recording material.

Accordingly, the applicants respectfully submit that claim 39 is allowable over Kihara. Claims 40 and 41 depend from claim 39 and are allowable for at least this reason.

In view of the remarks set forth herein, the application is believed to be in condition for allowance and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the examiner is requested to telephone the undersigned.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA, 22313-1450, on <u>2/2</u> , 2005.	
 Attorney for Applicant(s)	<u>2/2/05</u> Date of Signature

Respectfully submitted,



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